REMARKS

Claims 1-2, 8-12, and 18-31 are pending in the application. By this Amendment, claim 21 is amended to place the phrase "where N<M threshold" on a separate line as requested by the Examiner. No new matter is added. Support for the claims can be found throughout the specification, including the original claims, and drawings. Reconsideration in view of the above amendments and following remarks is respectfully requested.

The Office Action objected to claim 21 due to informalities. Claim 21, lines 5-6 have been amended as requested by the Examiner. Regarding lines 3-6 of claim 21, the claim is correct as written. The Examiner is referred, for example, to Figure 4 of the present application and the corresponding disclosure, for example, at page 8, paragraph 23. Figure 4 discloses an embodiment of the invention wherein comparison of two histograms is made possible by having the histograms have a different number of bins, one being a subset of the other and sharing a common threshold. That is, a histogram is selected to have N number of bins, N being a subset of M number of bins, where N number of bins and M number of bins share a common threshold. Accordingly, the objection to claim 21 should be withdrawn.

The Office Action objected to claims 22 and 31 under 37 C.F.R. §1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. The rejection is respectfully traversed.

The Examiner is correct that claim 21 recites a method of describing color information of images. More particularly, claim 21 recites a method of describing color information of images using a histogram. Claim 22 recites a method of searching images described using the method of

claim 21. It is respectfully submitted that claims 22 clearly defines a method of searching images described using the method of describing color information of images using a histogram as recited in independent claim 21. Similar arguments apply to claim 31, which depends from independent claim 23. Accordingly, the objection should be withdrawn.

The Office Action rejected claim 21 under 35 U.S.C. §112, second paragraph as being allegedly indefinite. The rejection is respectfully traversed.

The Examiner is again referred, for example, to Figure 4 of the present application and the corresponding disclosure, for example, at page 8, paragraph 23. Figure 4 discloses an embodiment of the invention wherein comparison of two histograms is made possible by having the histograms have a different number of bins, one being a subset of the other and sharing a common threshold. Independent claim 21 recites a method of describing color information of images using a histogram, comprising selecting a number N of bins, N being a subset of M number of bins, where N number of bins and M number of bins share a common threshold. Thus, because the histogram has N number of bins and shares a common threshold, it can be compared to a histogram having M number of bins. Accordingly, it respectfully submitted that claim 21 meets the requirements of 35 U.S.C. §112, second paragraph, and the rejection should be withdrawn.

The Office Action rejected claims 23 and 25-30 under 35 U.S.C. §102(b) as being anticipated by Li et al. (hereinafter "Li"), U.S. Patent No. 5,734,893. The rejection is respectfully traversed.

Independent claim 23 recites a method of transferring information describing an image using a color histogram, comprising transferring together and sequentially a first bit of each of a plurality of bins, transferring together and sequentially a second bit of each of the plurality of bins, and transferring together and sequentially all the bits having a same association for each of the plurality of bins until all bits have been transferred. The Examiner, in his rejection, refers to various passages of Li and states that "progressive transmission starts with the most significant bit of all data values of the color histogram."

However, Li discloses a progressive content-based retrieval of image and video with adaptive and interactive refinement. That is, Li teaches reducing the time between initiation of a query and obtaining the final results by obtaining query results progressively in terms of spatial resolution, temporal resolution, spectral resolution, and numerical accuracy of each element. Nowhere does Li teach transferring together and sequentially a bit from each of a plurality of bins of a color histogram. Further, Li teaches progressive processing of a content-based query, not progressive transmission as alleged by the Examiner. Furthermore, the Examiner argues that "progressive transmission starts with the most significant bit of all data values of the color histogram," and thus would not read on a method which transfers together and sequentially a first bit of each of a plurality of bins, transfers together and sequentially a second bit of each of the plurality of bins, and transfers together and sequentially all the bits having a same association for each of the plurality of bins until all bits have been transferred.

Accordingly, the rejection of independent claim 23 over Li should be withdrawn. Dependent claims 25-30 are allowable at least for the reasons discussed above with respect to independent claim 23, from which they depend, as well as for their added features.

The Office Action rejected claims 1, 11, and 31 under 35 U.S.C. §103(a) as being unpatentable over Abdel-Mottaleb et al. (hereinafter "Abdel-Mottaleb"), U.S. Patent No. 6,163,622, in view of Li. The rejection is respectfully traversed.

The Examiner argues that Abdel-Mottaleb discloses all of the features of independent claims 1 and 11 except that Abdel-Mottaleb does not expressly disclose that no adjacent bits have the same bin. The Examiner then applies the teachings of Li, again referring to various passages of Li, and arguing that being progressive, the histogram is received bit plane by bit plane, starting with the most significant bit plane. The Examiner then concludes that "it would have been obvious to one of ordinary skill in the art to modify Abdel-Mottaleb with the teaching of Li by progressively transmitting data, most significant bits first."

Independent claim 1 recites a method of receiving information describing an image using a color histogram, comprising receiving a first sequence of bits and a second sequence of bits, wherein each bit of the first sequence and each bit of the second sequence is associated with a bin and a threshold, and wherein in the order of bits of both the first sequence and the second sequence, no adjacent bits are associated with the same bin. Independent claim 11 recites an apparatus configured to receive and process information describing an image using a color histogram, comprising means for receiving and processing a first sequence of bits and a second sequence of bits, wherein each bit of the first sequence and each bit of the second sequence is

associated with a bin and a threshold, and wherein in order of the bits of both the first sequence

and the second sequence, no adjacent bits are associated with the same bin.

Abdel-Mottaleb discloses an image retrieval system 100 that compares images on the

basis of their color histogram. However, Abdel-Mottaleb does not disclose or suggest a method

wherein each bit of a first sequence of bits and each bit of a second sequence of bits is associated

with a bin and a threshold and, as admitted by the Examiner, wherein in the order of bits of

both the first sequence and the second sequence, no adjacent bits are associated with the same

bin. Further, as discussed above, Li discloses a progressive content-based retrieval of image and

video with adaptive and interactive refinement. That is, Li teaches reducing the time between

initiation of a query and obtaining the final results by obtaining query results progressively in

terms of spatial resolution, temporal resolution, spectral resolution, and numerical accuracy of

each element. Li teaches progressive processing of a content-based query, not progressive

transmission as alleged by the Examiner.

Accordingly, the rejection of independent claims 1 and 11 over Abdel-Mottaleb and Li

should be withdrawn. Dependent claim 31 depends from independent claims 23 so its inclusion

with this rejection is improper.

The Office Action rejected claims 2 and 12 under 35 U.S.C. §103(a) as being

unpatentable over Abdel-Mottaleb and Li, and further in view of Macisaac The rejection is

respectfully traversed.

Claims 2 and 12 are allowable over Abdel-Mottaleb and Li at least for the reasons

discussed above with respect to independent claims 1 and 11, from which they respectfully

depend, as well as for their added features. Further, Macisaac fails to overcome the deficiencies of Abdel-Mottaleb and Li, as it is merely cited as allegedly teaching "bit-by-bit comparison of two incoming bit streams." Accordingly, the rejection of claims 2 and 12 over Abdel-Mottaleb, Li, and Macisaac should be withdrawn.

The Office Action rejected claims 8-10 and 18-20 under 35 U.S.C. §103(a) as being unpatentable over the combination of Abdel-Mottaleb and Li, in view of Cheung et al. (hereinafter "Cheung"), an article "Progressive Image Transmission by Linear Quadtree Coding and Wavelet Transformation," 13th Int'l Conf. On Digital Signal Processing, V.2, 1997, pp. 475-478. The rejection is respectfully traversed.

Dependent claims 8-10 and 18-20 are allowable over Abdel-Mottaleb and Li at least for the reasons discussed above with respect to independent claims 1 and 11, from which they respectively depend, as well as for their added features. Further, Cheung fails to overcome the deficiencies of Abdel-Mottaleb and Li as it is merely cited to teach grouping values with the same associated coefficient. Accordingly, the rejection of claims 8-10 and 18-20 over Abdel-Mottaleb, Li, and Cheung should be withdrawn.

The Office Action rejected claim 21 under 35 U.S.C. §103(a) as being unpatentable over Wittenstein et al. (hereinafter "Wittenstein"), U.S. Patent No. 6,026,180 and Topiwala et al. (hereinafter "Topiwala"), U.S. Patent No. 6,771,826. The rejection is respectfully traversed.

Again, the Examiner is referred, for example, to Figure 4 of the present application and the corresponding disclosure, for example, at page 8, paragraph 23. Figure 4 discloses an embodiment of the invention wherein comparison of two histograms is made possible by having

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the histograms have a different number of bins, one being a subset of the other and sharing a common threshold. Independent claim 21 recites a method of describing color information of images using a histogram, comprising selecting a number N of bins, N being a subset of M number of bins, where N number of bins and M number of bins share a common threshold. Thus, because the histogram has N number of bins and shares a common threshold, it can be compared to a histogram having M number of bins. Wittenstein, taken alone or in combination with Topiwala, fails to disclose or suggest such features. Rather, Wittenstein, in the passages referred to by the Examiner, merely discloses creating a color histogram in order to compress color video data for storage. There is no disclosure or suggestion that the color histogram has a number N of bins, N being a subset of M number of bins, where N number of bins and M number of bins share a common threshold. Further, Topiwala fails to overcome the deficiencies of Wittenstein as it is merely cited to teach "compression by quantization." Accordingly, the rejection of independent claim 21 over Wittenstein and Topiwala should be withdrawn.

The Office Action rejected claim 22 under 35 U.S.C. §103(a) as being unpatentable over Abdel-Mottaleb in view of Wittenstein and Topiwala. The rejection is respectfully traversed.

Dependent claim 22 is allowable over Wittenstein and Topiwala at least for the reasons discussed above with respect to independent claim 21, from which it depends, as well as for its added features. Abdel-Mottaleb fails to overcome the deficiencies of Wittenstein and Topiwala, as it is merely cited as allegedly teaching image searching. Accordingly, the rejection of dependent claim 22 over Abdel-Mottaleb, Wittenstein, and Topiwala should be withdrawn.

The Office Action rejected claim 24 under 35 U.S.C. §103(a) as being unpatentable over Li, in view of Fukushima, U.S. Patent No. 5,724,457. The rejection is respectfully traversed.

Dependent claim 24 is allowable over Li at least for the reasons set forth above with respect to independent claim 23, from which it depends, as well as for its added features. Further, Fukushima fails to overcome the deficiencies of Li, as Fukushima is merely cited for allegedly teaching matching using only partial matching using a prefix of an input string. Accordingly, the rejection of dependent claim 24 over Li and Fukushima should be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **Carol L. Druzbick**, at the telephone number listed below.
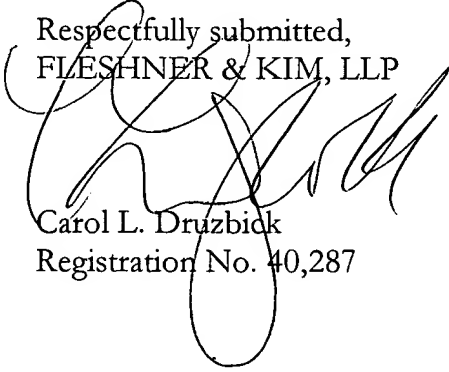
To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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